

Remarks

Reconsideration of this Application is respectfully requested.

Upon entry of the foregoing amendment, claims 1-54 are pending in this application. Claims 1, 7, 11, 24, 39 and 54 are amended. Claim 55 is added. These changes are believed to introduce no new matter, and their entry is respectfully requested.

Claims 1-55 are pending in the application.

In the Office Action dated August 15, 2006, claims 28, 39 and 51-53 are objected to due to informalities. Claims 1-6, 11-20, 23-29, 35-47, 49-54 stand rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Clifton et al., U.S. Patent No. 6,081,875 in view of Ohran et al., U.S. Patent Publication No. 2002/0112134. Claims 7, 22, 30 and 48 stand rejected 35 U.S.C. § 103(a) as being allegedly unpatentable over Clifton et al, Ohran et al. as applied to claims 1, 25 and 39 in view of Watanabe et al., U.S. Patent No. 7,013,371. Claims 21, 8-10 and 31-34 stand rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Clifton, Ohran as applied to claim 21 and in view of Uemura et al., U.S. Patent No. 5,720,026.

Based on the above amendment and the following remarks, Applicants respectfully request that the Examiner reconsider all outstanding objections and rejections and that they be withdrawn.

Rejections Based on Watanabe and finality of the Office Action

Claims 7, 22, 30 and 48 stand rejected based on a combination of Clifton, Ohran and Watanabe. These rejections are respectfully traversed. Watanabe has a U.S. filing date of August 13, 2003. The present application has a filing date of July 22, 2003, which is earlier than

the U.S. filing date of Watanabe. Applicants respectfully submit that Watanabe therefore is not a proper reference for rejection, and respectfully request that these rejections be withdrawn.

Applicants therefore believe that claims 7, 22, 30 and 48 are allowable, separate from any other arguments relating to patentability of their base claims. Claim 7 has been rewritten in independent form, to incorporate the limitations of claim 1 (prior to amendment).

Since the rejections based on Watanabe are in error based on its filing date, Applicants respectfully submit that it is proper to present the above amendments.

Objection to Claim 39

Claim 39 is objected to due to an alleged antecedent basis problem. This objection is respectfully traversed. The third line in the claim (which appears to be at issue) reads “informing an operating system driver that data in the storage device is in a backup state.” Applicants believe that the Examiner interpreted this sentence to read “informing an operating system driver the data in the storage device is in a backup state” as opposed to “that data in a storage device.” Applicants respectfully submit that no correction is required to address this objection.

However, Applicants view this is a relatively minor issue, and will amend the claim if the Examiner continues to believe that an antecedent problem exists, or if the Examiner believes that the current language is ambiguous. If no other substantive issues remain, Applicants’ representative requests that the Examiner contact him by telephone at the number below, to expedite resolution of this issue.

Rejections under 35 U.S.C. § 103(a) based on Clifton

All of the independent claims stand rejected based on Clifton in combination with various references. The independent claims have been amended to recite that:

an application that issued the write command is not required to ensure that the storage device is in a stable state

Support for the language of this amendment may be found, for example, at page 14, lines 12 - 13 (“The present invention provides a system and method for file system backup without suspending online application programs using a file system snapshot.”), and page 19, lines 15 - 16 (“If the block was not copied, then the OS driver suspends the block write and waits until the block has been copied and subsequently released.”) Since the backup is performed at the OS level, the application accessing disk drive is unaware of any change in the write process, and has no need to somehow organize the data it is working with before the backup process starts. Also, as described in the specification, the user application will experience a delay while implementing writes, but will not be required to do anything (see, e.g., specification, page 20, lines 8 - 10 - “Thus, the delays that result from writing to the main storage are reduced to a minimum and the programs running on the computers connected to the data storage can continue working substantially without pause.”). In other words, from the perspective of the application, the backup process is detectable at most a delay while performing writes – if at all. The same delay may be caused, e.g., by slow disk operation or by executing high priority processes (threads) in parallel with the application – i.e., the application has no way of knowing that any delays are due to backup (rather than something else), and does not need to do anything to deal with the backup.

At least this aspect is not taught or suggested by Clifton, which teaches the exact opposite (column 3, lines 50-60 of Clifton):

In the embodiment of FIG. 1, BA 140 will communicate with server 120 via LAN 110 to coordinate preparation for and initiation of the backup process. Immediately prior to initiation of the backup, the database must be placed in a quiescent state by server 120. **This typically requires temporarily precluding new database transactions until all pending transactions have concluded and all necessary database information has been written from server 120 to storage 130. This insures that the database is in a stable consistent state.** The interruption of normal database processing is typically accomplished quickly and with minimal disruption for the users. As soon as the system is in the quiescent state, the backup can be started and users can be allowed to continue to use the system normally while the backup occurs.

The claimed aspect is clearly in contrast to Clifton, where the backup process must place the database in a consistent state prior to the backup, see passage from Clifton quoted above. It is well known in the art that to do a database backup such as described in Clifton, the backup process needs to invoke a dedicated internal API in the database application (or perform some similar action), and the internal API will place the database in a consistent state.

Thus, since Clifton, the primary reference used for rejections of the claims, teaches away from the claimed invention, Applicants respectfully request reconsideration and withdrawal of the rejections.

New claim 55

New claim 55 recites that data transfer from the intermediate block data container to the backup storage device is asynchronous. Support for the language of this claim may be found, for example, at page 20, lines 9-15. At least this aspect is not taught by Clifton.

Conclusion

All of the stated grounds of objection and rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider all presently outstanding objections and rejections and that they be withdrawn. Applicants believe that a full and complete reply has been made to the outstanding Office Action and, as such, the present application is in condition for allowance. If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

Prompt and favorable consideration of this Amendment and Reply is respectfully requested.

Respectfully submitted,
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